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ABSTRACT

Many criticisms of Fiedler's contingency model focus upon the LPC (Least Preferred Coworker) scale. The characteristics of the LPC scale were investigated in two studies. Experiment 1 focused upon determining the factor structure of LPC and relevance ratings, while Experiment 2 dealt with relationships among LPC, relevance, and self-ratings. Results indicate the following: (1) the growing body of research supports the finding that LPC can be more productively viewed as a multidimensional measure rather than the bipolar task versus relationship oriented scale proposed by Fiedler (1967); (2) LPC should be viewed as an indirect measure of the rater's attitudes and priorities vis-a-vis a description of an undesirable person; (3) the results draw into question the LPC typology proposed by Fiedler and suggest that the low-LPC person be considered highly oriented to the dimension being rated, and a high LPC score as indicating the absence of this orientation; and (4) many of the problems associated with research on the Fiedler model are the result of the measurement problems associated with LPC, and point directly to the need to develop an alternative means of measuring this critical individual characteristic. (Author/CKJ)

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Dimensions and Dimension Relevance in LPC Selection and Evaluation

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Abstract

Many criticisms of Fiedler's contingency model focus upon the LPC scale. Prior research has suggested that LPC is a description of a person indirectly reflecting the attitudes of the rater. Experiment 1 focused upon determining the factor structure, of LPC and relevance ratings and Experiment 2 dealt with relationships among LPC, relevance, and self ratings. Results indicated that LPC should be interpreted as a description of a person partly determined by the importance attached to certain types of behaviors by the rater. Further, a low LPC rater was labeled as relationship oriented. There is a need to develop alternative measures for classifying leader types.

Dimensions and Dimension Relevance in LPC Selection and Evaluation

Fiedler's (1967) contingency model is one of the better known theories of leadership and has been implemented into a number of programs geared towards improving leadership effectiveness (Fiedler, Chemers, & Mahar, 1976). Yet a growing body of research is delineating a number of theoretical and practical problems associated with the model (Ashour, 1973; Graen, Alvares, Orris, & Martella, 1970; Rice, in press; Schriesheim & Kerr, 1976; Shiflett, 1973; Shiflett, Downey, & Duffy, Note 1). Many of these problems pertain to characteristics of the Least Preferred Coworker scale (LPC) and must be resolved before the model can be fully evaluated.

One of the more persistent and damaging problems with the model concerns the LPC scale's apparent lack of relationship with other individual measures of leadership ability. Thus, this seemingly idiosyncratic measure of group performance has been defined as an indirect measure of other constructs, e.g., cognitive complexity (Fiedler, 1971) or personal need hierarchy (Fiedler, 1972), which are believed to mediate the relationship between LPC and group performance. Obviously, the use of such constructs offer little real meaning for the LPC scale.

A second criticism deals with the dimensionality of LPC. Several studies (Fox, Hill, & Guertin, 1973; Gruenfeld & Arbuthnot, 1968, Shiflett, 1974; Yukl, 1970; Shiflett et al., Note 1) have indicated that Fiedler's LPC scale seems to be measuring more than one dimension, representing anywhere from two dimensions (structure vs. consideration) to five dimensions. However, Shiflett et al. (Note 1) have suggested that utilizing the multidimensional nature of LPC may in fact solve some of the problems associated with the scale rather than be a problem in itself.

Fishbein, Landy and Hatch (1970) and Shiflett et al. (Note 1) have suggested that LPC would be more productively viewed as a measure of the attitudes of the person filling out the LPC questionnaire. Shiflett et al. (Note 1) have further suggested that raters select someone as a least preferred coworker for any number of various personal reasons which may differ from one rater to the next, and the selection process itself may well reflect the raters' preferences and priorities. They interpret the LPC scale as an indirect measure of a rater's personal reasons for selecting a particular individual as a least preferred coworker, and therefore it is an indirect measure of characteristics that a rater values in a coworker and most likely in himself/herself as well.

Multidimensionality being the case and also assuming that the rater assigns different degrees of importance to the dimensions measured, one may consequently expect to find differences in relevance across the LPC scales. When raters evaluate an LPC some subsets (dimensions) of items may be more relevant to their personal reasons for selecting someone as an LPC than other subsets. Shiflett et al. (Note 1) have suggested that scores on a relevant (important to the LPC's selection) dimension should tend to cluster at the low end of the LPC scale, as it is highly illogical for an LPC to receive a favorable rating on a dimension which is relevant to a rater's reason for selecting that individual as a person they would not like to work with on the job. On the other hand, scores on a nonrelevant LPC dimension were predicted to be distributed across the entire score range of the LPC scale. In this case, it is equally likely for an LPC to score high as to score low since the dimension is not important and the rater is simply attempting to describe the LPC. This would, if true, result in a negative relationship between LPC and Relevance dimensions. Knowledge of a rater's relevant dimensions in LPC selection tells us something about the rater's values and possibly the rater's behavior. However, Shiflett et al. (Note 1) also noted that if the goal is to determine a rater's values, then ascertaining dimension relevance in a more direct manner may offer more

valuable information than the LPC score. A high LPC score appears to suggest a nonrelevant dimension while a low LPC score is quite ambiguous. Therefore, a more direct approach should be considered since LPC scores can only indirectly and incompletely reflect the rater's values.

To present, no study has been done to verify this proposed relationship between the rater's LPC scale scores and the relevance of that scale to LPC selection. This paper will address the following questions:

1) Can dimensions be identifited through factor analysis for both LPC and Relevance ratings on each item and if so are the LPC dimensions and the Relevance dimensions similar to the dimensions found in the Shiflett et al. (Note 1) study?
2) If similar dimensions are found, is there a negative relationship between a dimension's LPC scale score and its comparable Relevance scale score?
3) What is the relationship between Relevance and perception of oneself as a worker? No specific prediction is made, although one would assume that what one thinks is relevant (to selecting an LPC) would be positively related to self perceptions.
4) What is the relationship between LPC and self perception? Since LPC is an indirect measure one would assume low to zero correlations.
5) Finally, if LPC scores are indirect measures of the values of the rater, then are both LPC scores and relevance scores related to selected self-evaluation criteria but in opposite directions?

To test these predictions two sequential experiments were conducted. In Experiment 1 the focus was upon replicating the factor structure found for LPC in the Shiflett et al. study (Note 1) and performing a weak test of the relationship between LPC and Relevance. The second study used the revised set of LPC items and tested hypotheses implicit in questions 2, 3, 4, and 5.

Experiment 1

Method

Subjects. Subjects were freshman college students participating in an individual/social development course offered each fall semester. The number of subjects used in the factor analysis and to test the relationship between LPC and Relevance was 86.

Procedures. A questionnaire was administered near the beginning of the course and included both biodemographic questions and a revised LPC scale (Shiflett, et al., Note 1) consisting of thirty-two bipolar adjectives in semantic differential format including the sixteen items used by Fiedler (1967) as well as others devised by Yukl (1970) and the authors. All students were asked to describe their LPC and then were requested to go back through the list of 32 items and place a check mark beside items which they felt were relevant to their reasons for selecting the person as a least preferred coworker (LPC).

The item scores used in the factor analysis were the scale values for LPC (1-7) and binary coding (1 = checked and 0 = not checked) for the Relevance data. After the factor analysis, scores derived for each subject were the summed scale values of the items representing an LPC dimension and the number of items in a dimension which were marked relevant.

Results. The thirty-two LPC item scores were submitted to principal axes factor analyses with varimax rotation. Separate factor analyses were done on the LPC and Relevance item responses. The LPC analysis yielded an interpretable four-factor structure which accounted for 57.3% of the total variance and the factors were labeled Consideration/Helpfulness (C/H), Dependability (D), Extroversion (E), and Self-Sufficiency (S/S). The Relevance principal axes factor analysis yielded a structure that appeared to be best described by five factors which accounted for 47.6% of the total variance. Four of the five factors were labeled the same as for LPC and the fifth was named Interesting (I). Coefficients of congruence (Harman, 1967) using all 32 items were used to measure

the degree of factorial similarity with the Shiflett et al. (Note 1) LPC factor structure. These results are reported in Table 1, and suggest fairly high degrees of congruence and therefore similar factor structures. Given the similarity of the structure and the larger number of subjects used in the Shiflett et al. study, the remainder of Experiment 1 used the items from the first four factors suggested by Shiflett et al. for scoring both the LPC and the Relevance scales.

Table 2 shows the intercorrelations among the various LPC and Relevance scores. The Relevance scores were intercorrelated to a lesser degree than were the LPC scores. The correlations between the Relevance dimension scores and the LPC dimensions are also reported in Table 2. The results show that in three of the four scales there were significant but moderate negative relationships between a dimension's LPC score and its corresponding Relevance score.

Experiment 2

Method

Subjects. Subjects in Experiment 2 were undergraduate students participating in a variety of psychology classes. A total of 127 students agreed to participate but eight turned in incomplete data on one or more of the sections and therefore were dropped from the analysis. The remaining 119 students constituted the subject sample.

Procedures. All subjects were administered a questionnaire during their respective classes. The questionnaire took approximately 15 minutes to complete and was composed of three major parts: a revised LPC scale (nineteen items selected by Shiflett et al., Note 1), the same nineteen items measuring Relevance; and the same nineteen items measuring the individual's perception of themselves as workers. Items were marked using a 1-7 scale and dimension scores were the sums of the item scale scores. This was done separately for each section (i.e., LPC, Relevance, and self). The directions for the three measures were as follows:

LPC - Standard directions (Fiedler, 1967) but with sexist language removed.

Relevance - For each of the 19 items below indicate how important and

relevant each one was to you in selecting the person you described as your least preferred co-worker.

Self - Describe yourself in a work situation. . . .

Subjects were also asked to describe their effectiveness as a worker and as a supervisor on a four point scale.

Results. Using the original scales of Shiflett et al. (Note 1) as partially confirmed in Experiment 1 above, five scale scores were developed for each of the three different sections of the questionnaire. These were the same four scales used in Experiment 1 plus a fifth factor, Personal Composure (P/C). Table 3 gives the intercorrelations of the five scales from each of the three measures and the two items describing the individual's effectiveness as a worker and effectiveness as a supervisor. Generally, the five scale scores had low to moderate intercorrelations within each of the three types of ratings (LPC, Relevance and Self). The scales related to interpersonal interaction (C/H, E, and P/C) had higher correlations with each other and lower correlations with the task scales (D and S/S), which had higher correlations with each other. This pattern was consistent over all sections with the only exception being the Self ratings where D and S/S were not highly correlated.

As predicted, the corresponding scales of the LPC and Relevance measures were negatively correlated (significantly) indicating that LPC's received low scores on scales which were relevant to the rater in selecting the LPC. Further, there was a decided tendency for the consideration scales (C/H, E, and P/C) of LPC to have significant negative correlations with the consideration scales of the Relevance section.

Also as suspected, the LPC and Self measures were not significantly correlated with each other. However, the Relevance and Self rating measures were significantly correlated for the E and P/C scales. An examination of the correlations between Self and Relevance scales indicated significant relationships across the consideration scales (C, E, and P/C).

As can also be seen in Table 3, individuals who rated themselves as more effective workers and supervisors tended to rate their LPC's as high in D. Conversely, the individuals who rated themselves as more effective workers tended to indicate that Dependability and Extroversion were less relevant in their selecting a person as a LPC. Finally, individuals who rated themselves as more effective workers tended to rate themselves as high on D and individuals who rated themselves as more effective supervisors tended to rate themselves as high on D, E, and S/S.

Discussion

The results from Experiment 1 generally supported the previous results (Fox, Hill & Guertin, 1973; Gruenfeld & Arbuthnot, 1968, Yukl, 1970; Shiflett, 1974; and Shiflett, et al., Note 1) that LPC is a multidimensional measure. Even more impressive was the high congruence between the factor structure of this study and the Shiflett et al. study, especially given the vastly different types of samples utilized (i.e., older males in a military context versus college students).

As predicted, both Experiments 1 and 2 found that LPC and Relevance scales were negatively correlated. This negative relationship supported the view that individuals with low LPC scores also tend to place high importance on that type of behavior in determining who is a LPC. Since nonrelevant dimensions can receive high or low LPC scores, the correlations, as expected, were moderate to low. These findings would tend to support the view that the LPC scores are generally descriptions of a person and that the selection of this person (LPC) is influenced by the particular values and attitudes of the rater. It should be pointed out that this interpretation of the LPC rating process leads to an entirely different interpretation of what type of rater has a low (or high) LPC score.

Fiedler (1967) has tended to view the high LPC person as relationship oriented. The present research would tend to view the low LPC person, at least

on the relationship (C/H, E, and P/C) scales as relationship oriented since LPC correlates negatively with dimension relevance. Support for this interpretation can be found in the work of Shiflett and Nealey (1972) and Steiner (Note 2) who found that low LPC individuals act like high interpersonal interaction people. Further support for viewing the low LPC person as relationship oriented is seen in the general tendency for people who rate an interpersonal relation dimension as relevant to describe themselves as higher in relationship oriented types of behavior, i.e., C/H, E, P/C. These results do not necessarily conflict with the results of previous leadership effectiveness research based on the Fiedler (1967) model which does not depend upon a particular interpretation of LPC. However, they do indicate that the general problems associated with LPC research, i.e. low relationships and/or inconsistent findings, may be the result of the indirect nature of the LPC Measure and the failure to consider the LPC's multidimensional nature.

To quickly summarize the findings: first, these results support the growing body of research supporting the finding that LPC can be more productively viewed as a multidimensional measure rather than the bipolar task versus relationship oriented scale proposed by Fiedler (1967). Second, LPC should be viewed as an indirect measure of the rater's attitudes and priorities vis-a-vis a description of an undesirable person. Third, these results draw into question the LPC typology proposed by Fiedler and suggest that the low LPC person be considered highly oriented to the dimension being rated and a high LPC score as indicating the absence of this orientation. Finally, this research suggests that many of the problems associated with research on the Fiedler model are the result of the measurement problems associated with LPC and point directly to the need to develop an alternative means of measuring this critical individual characteristic.

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Table 1 - Coefficients of Congruence

LPC Factors[a]	Relevance Factors[a]				Shiflett, Downey and Duffy, (Note 1) LPC Factors			
	1	2	3	4	1	2	3	4
1. Consideration/ Helpfulness	83	50	65	37	88	31	78	25
2. Dependability	51	95	37	51	42	88	30	36
3. Extroversion	71	38	92	35	55	44	84	26
4. Self-Sufficiency	21	50	56	87	22	41	28	71

[a]Order of factor extraction was altered to conform to Shiflett, Downey and Duffy, Note 1.

NOTE: Decimals have been omitted.

Table 2 - Correlation Between LPC and Relevance Scales in Experiment 1
(N = 86)

	LPC				Relevance				
	C/H	D	E	S/S	C/H	D	E	S/S	I
LPC									
Consideration/ Helpfulness	---								
Dependability	46**	---							
Extroversion	66**	36**	---						
Self-Sufficiency	31**	49**	30**	---					
Relevance									
Consideration/ Helpfulness	-24*	-16	-23*	06	---				
Dependability	03	-37**	-02	-19	54**	---			
Extroversion	-02	00	-31**	03	52**	28**	---		
Self-sufficiency	16	-07	13	-17	18	30**	12	---	
Interesting	27*	17	17	05	15	17	38**	16	---

* $p < .05$
** $p < .01$

Table 3 - Intercorrelations of LPC, Relevance and Self Scales for Experiment 2
(N = 119)

Scales	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
			LPC				Relevance						Self				
LPC																	
1. Consideration/Help	---																
2. Dependability	40*	---															
3. Extroversion	77*	34*	---														
4. Self-sufficiency	33*	54*	34*	---													
5. Personal Composure	55*	11	56*	11	---												
Relevance																	
6. Consideration/Help	-24*	08	-11	22	-22*	---											
7. Dependability	01	-22	01	-04	-04	50*	---										
8. Extroversion	-21*	-02	-27*	06	-21*	70*	55*	---									
9. Self Sufficiency	05	-15	06	-22*	-04	43*	74*	48*	---								
10. Personal Composure	-21*	04	-18*	13	-37*	67*	38*	57*	52*	---							
Self (Work)																	
11. Consideration/Help	00	-10	02	-01	-06	04	05	19*	00	16*	---						
12. Dependability	05	-02	04	-02	-04	03	11	08	06	05	38*	---					
13. Extroversion	10	06	15	06	03	15	22*	24*	15*	18*	70*	46*	---				
14. Self Sufficiency	04	-05	07	-01	-02	-01	01	-05	00	10	26*	25*	31*	---			
15. Personal Composure	00	06	02	06	-09	17*	12	23*	07	18*	50*	20*	48*	15	---		
16. Effect. as Worker	06	16*	11	02	15	-09	-18*	-19*	-12	-08	09	19*	11	10	-06	---	
17. Effect. as Super.	10	20*	10	07	05	03	-08	-06	05	11	11	20*	17*	25*	14	41*	---

NOTE: Decimals omitted

* $p < .05$